Initial project description and requirements

Overview:

The purpose of this project is to develop an AI chess bot that can play chess against human opponents. The project will start with understanding the basics of chess and simple AI techniques, gradually advancing to more complex algorithms and optimizations. This chess bot will be implemented using Python, leveraging basic AI algorithms like Minimax and Alpha-Beta Pruning. By the end of this project, a solid understanding of chess rules, Python programming, and fundamental AI concepts will be attained.

Key Requirements:

Chess Rules Implementation:

- The system must understand all the rules of chess. This includes piece movement, special moves (castling, en passant), check, checkmate, and stalemate.

AI Algorithms:

- A basic version of Minimax should be implemented to allow the AI to evaluate possible moves up to a fixed depth, based on board evaluation functions.
- Should implement Alpha-Beta pruning to reduce the number of nodes that are evaluated.

Graphical User Interface:

- The GUI must allow users to interact with the chess game visually.
- The GUI must display the board, chess pieces, and enable drag-and-drop functionality for human moves.

AI vs. Human Gameplay:

- The chess bot must be able to play against human opponents, where the human player can make moves either through the command-line interface or the graphical interface.

Testing:

- The bot must respond with valid moves and recognize win/loss/draw conditions correctly.

Version Control and Project Management:

- Must use GitHub for version control

Non-functional Requirements:

- The AI should evaluate and make a move within 1 second